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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,584	07/29/2003	Robert J. Steger	LAM-PI093 (032747-000032)	1627
49713 7590 02/15/2008 LAM - THELEN REID BROWN RAYSMAN & STEINER LLP P.O. BOX 640640 SAN JOSE, CA 95164-0640				
EXAMINER				
ARANTIBIA, MAUREEN GRAMAGLIA				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
02/15/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/630,584

Applicant(s)

STEGER, ROBERT J.

Examiner

Maureen G. Arancibia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/ICE)
Paper No(s)/Mail Date 09/03/06/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-10, in the reply filed on 27 June 2007 is acknowledged.
2. It is noted that all claims drawn to non-elected inventions have been cancelled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of U.S. Patent Application Publication 2003/0137249 to Nakano et al.**

In regards to Claims 1, 4, 6, 9, and 10, AAPA teaches a plasma processing reactor (Figure 1 of the instant application) comprising: a chamber 102 having a substrate support 106 asymmetric about a vertical axis of said chamber (Paragraphs 5-7 of the instant application); and an RF power supply 114 coupled to said chamber, said RF power supply adapted to supply RF power to said chamber to generate a plasma therein (Paragraphs 5-7 of the instant application).

It is noted that substrate support 106 would be structurally capable of being removed from the chamber, as broadly recited in the claims, based on a user's ability to disassemble the apparatus (using a variety of tools) in whatever manner desired. It has

been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

AAPA does not expressly teach that an electrically resistive material, such as copper, is selectively plated on at least the chamber wall in various shapes, such as a plurality of film strips azimuthally positioned, so as to vary the RF impedance azimuthally; the electrically resistive material having an RF impedance different from an underlying base material of said chamber.

Nakano et al. teaches a plasma processing reactor (ex. Figure 1) comprising: a chamber 21 having a substrate support 8 about a vertical axis of said chamber (ex. Paragraph 53); a RF power supply 1 coupled to said chamber, said RF power supply adapted to supply RF power to said chamber to generate a plasma therein (ex. Paragraphs 48-53); and an electrically resistive material such as copper selectively plated in various shapes, such as a plurality of film strips azimuthally positioned (*one or more linear or zonal low-resistance conductive paths*), so as to vary the RF impedance azimuthally, the electrically resistive material having an RF impedance different (*lower*) from an underlying base material of said chamber (see at least Paragraphs 13-20 and Paragraph 74)

It would have been obvious to one of ordinary skill in the art to modify the apparatus taught by AAPA to selectively plate an electrically resistive material, such as copper, on at least the chamber wall in various shapes, such as a plurality of film strips azimuthally positioned, so as to vary the RF impedance azimuthally; the electrically resistive material having an RF impedance different from an underlying base material of said chamber, as taught by Nakano et al. The motivation for making such a modification, as taught by Nakano et al. (see at least Paragraphs 13-20 and 74), would have been to make the impedances on the surface of the chamber symmetrically equal, so as to reduce loss of the RF power supplied to the plasma generation space and prevent variation in the plasma density.

In regards to Claims 2, 3, and 5, Examiner takes official notice that the composition and thickness of an electrically resistive material directly affect its characteristic impedance.

It would have been obvious to one of ordinary skill in the art, through routine experimentation, with a reasonable expectation of success, to further modify the apparatus taught by the combination of AAPA and Nakano et al. to vary the composition and thickness of the strips of electrically resistive material, as result-effective variables, in order to locally optimize the RF impedance of each of the strips of electrically resistive material, for the predictable result of symmetrically equalizing the impedances on the surface of the chamber and preventing variation in the plasma density.

In regards to Claim 7, the electrically resistive material in the combination of AAPA and Nakano et al. is selectively applied prior to performing any processing in the

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chamber. The apparatus taught by the combination of AAPA and Nakano et al. would be structurally capable of performing processing on a portion of a surface of the removable substrate support with the chamber, as broadly recited in the claim, by simply not covering the substrate support with a substrate. It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danyl*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Nakano et al. as applied to Claim 1, and further in view of U.S. Patent 6,706,138 to Barnes et al.

The teachings of AAPA and Nakano et al. were discussed above.

In regards to Claim 8, the combination of AAPA and Nakano et al. does not expressly teach that the electrically resistive material includes nickel.

Barnes et al. teaches that an impedance adjusting member 265 can be made of nickel. (Column 7, Line 37 - Column 8, Line 3)

It would have been *prima facie* obvious to one of ordinary skill in the art to have the electrically resistive material include nickel, as an art-recognized suitable material for use in adjusting impedance on a chamber wall, as taught by Barnes et al. It has been held that the selection of a known material based on its suitability for its intended

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use is prima facie obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571)272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Maureen G. Arancibia/
Examiner, Art Unit 1792

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/Parviz Hassanzadeh/

Supervisory Patent Examiner, Art Unit 1792